

REMARKS

Entry of the foregoing, re-examination and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.112, and in light of the remarks which follow, are respectfully requested.

Claims 1-20 have been replaced by new claims 21-38. Support for the new claims may be found throughout the specification, the original claims and the figures of the drawings. No new matter is believed to have been introduced.

In accordance with the requirement set forth in paragraph (3) of the Office Action, applicants are filing concurrently herewith, formal drawings for Figures 9 and 10 which are designated with the legend "Prior Art."

The drawings were objected to for the reasons set forth in paragraph (4) of the Office Action. Claims 9-15 and 17 have been canceled. In the new claims, the language "forced mold separating means" has been replaced by forcible releasing means. The feature of a forcible releasing means is believed to be clearly shown in the figures of the drawings. Accordingly, this requirement should be withdrawn.

Claims 1-8 and 16 were rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 1,909,374 to McNamara for the reasons given in paragraph (6) of the Office Action. Reconsideration of this rejection is requested in view of the above amendments and for at least the reasons which follow.

Initially, applicants note that *McNamara '374* does not relate to the manufacture of optical elements. Moreover, while the Office Action states that this reference discloses a drum capable of regulating the upper and lower molds such that the displacement axes

align (referring to member 6 of Fig. 1), member 6 is actually characterized as a blank mold adapted to form the body portion of the container to be manufactured (page 2, lines 5-19). Accordingly, member 6 does not function to align the axes of the upper and lower molds. There is no disclosure in the reference of a member which regulates the upper and lower molds to align their axes.

Further, the Office Action states that a forced (forcible) mold separating means for separating the adhered glass article from the mold by contact is disclosed as member No. 31 ("ring mold") of Fig. 1 of the reference. To the contrary, the reference states: "The ring mold automatically maintains the proper adjustment while leaving the mold, thereby preventing any damage to molded ware during the removal of the plunger and ring mold" (page 3, right column, lines 22 to 26.) "The ware is ejected from the blank mold at the take-out station by elevating the plunger 10 and is thereafter removed. (Page 3, right column, lines 30 to 32).

Thus, member 31 does not function to force separation (or release) of the molded article from the forming surface by contact in any other manner. The separating (or releasing) of the molded article (ware) from the mold is effected by elevating the plunger, according to the reference. There is no member disclosed for separating (releasing) the adhered molded article from the forming surface. Since there is no separating (or releasing) means in *McNamara '374*, there would be no displacing (moving) means for displacing (moving) the separating (or releasing) means.

In view of the above, it is clear that *McNamara '374* does not anticipate the present claims. The reference has no teaching or suggestion of any of the elements of the present

invention, still less the benefit of separating or releasing the adhered molded article from the forming surface without worsening the alignment of the axes. Accordingly, the §102(b) rejection over *McNamara '374* is inapplicable to new claims 21-38 and should be withdrawn.

Claims 1-18 were rejected under 35 U.S.C. §102(b) as anticipated by JP 11-49523 to Hirota et al for the reasons set forth in paragraph (7) of the Office Action. Reconsideration of this rejection is requested in view of the above amendments and for at least the following reasons.

In the Office Action, the Examiner asserts that *Hirota '523* shows in Figure 7, member 350, a drum capable of regulating the upper and lower molds to provide for alignment of the displacement axes thereof. However, applicants note that member 350 does not contact upper mold 320. Therefore, member 350 cannot function to regulate the upper mold to align the axes of the upper and lower molds. More specifically, *Hirota '523* discloses [0065] that when the lower part of the mold 314 is raised, member 360 in the outside of the lower part of sleeve 324 engages the lower matrix 328 and sleeve 324 moves up to resist spring 25. When the lower face of the 2nd upper matrix 18 and the upper face of the 2nd lower matrix 328 contact each other, the glass material is completely pressed through. Although the sleeve 324 is energized downward with the spring 25, as member 360 engages with the lower matrix 328, the downward movement is restricted. When the lower face of the 2nd upper matrix 18 and the upper face of the 2nd lower matrix 328 are in contact, although the pressed glass material has a larger diameter than the outer diameter of the lower face (forming surface) of an upper mold 220, this outer diameter is determined

by the inner surface of the upper sleeve 354 of the 2nd sleeve 350. The molded glass material (lens) is cooled in this state with a predetermined cooling rate until it is below the transition point of glass. During cooling, since an upper lower 320 is in a free state, it presses a lens with its self-weight (for example 0.005 kg/cm²).

[0066] When the lower part of the mold 314 is moved down after a lens is cooled, the edge of the step 346 of the sleeve "225" of the upper part of the mold 312 will contact the upper surface edge of the lens, and will move the lens which had adhered to the upper mold 320. Thereby, the lens is released from the upper mold 320 and falls on lower mold "320" ("224" above is supposed to be 324, and "320" is supposed to be 330).

The above remarks explain the operation in Fig. 7 (4th Embodiment). As is understood from the above, the molded article has a diameter larger than the outer diameter of the forming surface of the upper mold 220 and the diameter of the molded article is determined by the inner diameter of 354. This means that the inner diameter of 354 is larger than the diameter of upper mold 220, which leads to the conclusion that upper part 354 of the sleeve 350 cannot be in contact with the upper mold 220. In turn, the sleeve 350 does not function to regulate the upper mold 220.

The feature disclosed above is important if the sleeve 324 (which is the forcible releasing means according to the present invention) is to contact the rim of the molded article and release it from the upper forming surface. On the other hand, the drawback of the apparatus of this reference is that the axes of the upper and lower mold cannot be in precise alignment. This is discussed in the background of the present specification. (The

upper mold 220 is regulated by upper sleeve 324, which is the forcible releasing means of the present invention. It is hung unstably and therefore axes alignment is insufficient).

The advantages of the present invention are as follows, referring to, for example, Fig. 4(a)-(c) of the present specification. Each of upper mold 12 and the lower mold 13 has a forming surface to press mold the glass material A'. Both the upper mold and the lower mold are regulated by upper sleeve 14. When the lower mold approaches the upper mold, the movement of the mold is guided by the upper sleeve and, therefore, precise alignment of the axes of the upper and the lower molds is obtained. This leads to the manufacture of the superior optical elements of high precision obtained by the present invention. As shown in Fig. 4(b), the upper and lower molds in their pressing positions are regulated by the upper sleeve in sufficient alignment. At this time, the forcible releasing means (i.e., ring 18) is pushed upward by the lower mold and is not in contact with the glass material. When the molds are separated after pressing (Fig. 4(c)), the forcible releasing means will be moved downward by the spring 19. The forcible releasing means will contact and push the rim portion of the molded glass article, if it is adhered to the forming surface of the upper mold. In this manner, the molded article will be securely placed on the lower mold, and will be collected.

Thus, a significant feature of the invention is the positional regulation by the upper sleeve, which provides precise axes alignment, while the forcible releasing of the molded article from the forming surface is independent of the positional regulation. This is in sharp contrast to *Hirota* '523 where the axes alignment is unsatisfactory due to the fact that forcible releasing means (which are expected to move up and down with sufficient

freedom) is intended to act also as the axes regulator of the molds. The upper sleeve in this embodiment (as the regulator) corresponds to separating ring stop 10 in Fig. 2 or sleeve 32 in Fig. 5.

For at least the above reasons, the §102(b) rejection over *Hirota* '523 is inapplicable to claims 21-38 and should be withdrawn. Such action is earnestly requested.

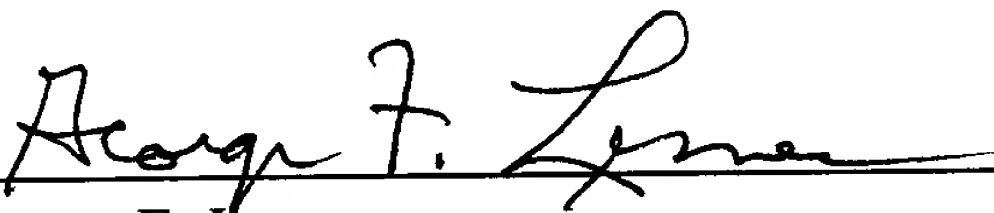
Claims 9-15, 17 and 18 were rejected under 35 U.S.C. §103(a) as unpatentable over *McNamara* '374 in view of *Hirota* '523 for reasons given in paragraph (10) of the Office Action. Reconsideration of this rejection is requested in view of the above amendments and for at least the following reasons.

The deficiencies of each of *McNamara* '374 and *Hirota* '523 were discussed above. The combined teachings of these references fails to disclose or suggest an apparatus and method as set forth in claims 21-38. Even if one of ordinary skill were motivated to modify the invention of *McNamara* '374 in accordance with the disclosure of *Hirota* '523, the resultant method and apparatus would not render obvious the presently claimed invention by disclosing all the features claimed. Accordingly, the §103(a) rejection is inapplicable to the present claims and should be withdrawn.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at (703) 838-6683 at his earliest convenience.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 
George F. Lesmes
Registration No. 19,995

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

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